

What is claimed is:

1. A bezel for use in delivery of pneumatic pressure comprising:  
a rigid block having a plurality of ports integrally molded on a port  
5 side of the rigid block, each port providing a solvent bondable tubing  
connection to the bezel; and  
a plurality of cavities on a pumping side of the rigid block, each cavity  
in fluid communication through the rigid block with one of the ports for  
delivering pneumatic pressure applied to the port through the solvent  
10 bondable tubing connection.
2. A bezel according to claim 1 wherein the ports are hollow tubular  
structures integral with the rigid block and extending out from the port side  
of the rigid block.  
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3. A bezel according to claim 2 wherein the port side is opposite the  
pumping side.
4. A bezel according to claim 1 wherein the ports have inner diameters  
20 larger in size than the cavity in fluid communication therewith.
5. A bezel according to claim 1 further comprising:  
a first depression in the pumping side of the rigid block, the first  
depression having at least one of the cavities therein.  
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6. A bezel according to claim 5 further comprising:  
ribs extending up from the first depression to form an elevated contour  
above the pumping side of the rigid block, the ribs allowing pneumatic  
pressure applied through the at least one cavity in the first depression to be  
30 applied over the elevated contour.

7. A bezel according to claim 6 wherein the ribs form a symmetrical grid of air passages.

8. A bezel according to claim 7 wherein the first depression includes a chamber wall from which the ribs extend such that removal of the ribs leaves an open chamber defined by the chamber wall.

9. A bezel according to claim 8 wherein the ribs are removable by a milling operation.

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10. A bezel according to claim 6 further comprising an open chamber formed by a second depression in the pumping side of the rigid block.

11. A bezel according to claim 10 wherein each of the first and second depressions include two of the cavities therein.

12. A bezel according to claim 6 wherein the first depression includes two of the cavities therein.

20 13. A bezel according to claim 12 wherein the ribs are arranged to provide a plurality of air passages between the two of the cavities.

14. A bezel according to claim 13 wherein the ribs leave a straight air passage unobstructed by ribs at each of the two cavities, such that at each of the two cavities the respective straight air passage connects the cavity to the plurality of air passages between the two of the cavities.

15. A bezel according to claim 13 wherein the ribs are parallel to a perimeter of the first depression.

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16. A bezel according to claim 6 wherein the elevated contour formed by the ribs is a mound that increases in height from a perimeter of the first depression toward a middle of the mound.

5 17. A bezel according to claim 6 wherein the ports are hollow tubular structures integral with the rigid block and extending out from the port side of the block.

18. A bezel according to claim 17, wherein the port side is opposite the  
10 pumping side.

19. A bezel according to claim 17 wherein the ports have inner diameters larger in size than the cavity in fluid communication therewith.

15 20. A bezel according to claim 5 further comprising:  
means for coupling a rib insert in the depression, the rib insert including ribs extending up from the first depression to form an elevated contour above the pumping side of the rigid block, the ribs allowing pneumatic pressure applied through the at least one cavity in the first  
20 depression to be applied over the elevated contour.

21. A bezel for use in delivery of pneumatic pressure comprising:  
a rigid block having a plurality of cavities on a pumping side of the block in fluid communication with ports accessible from a port side of the  
25 block;

a first depression in the pumping side of the rigid block, the first depression having at least one of the cavities therein; and

ribs extending up from the first depression to form an elevated contour above the pumping side of the rigid block, the ribs allowing pneumatic  
30 pressure applied through the at least one cavity in the first depression to be applied over the elevated contour.

22. A bezel according to claim 21 wherein the ribs form a symmetrical grid of air passages.
- 5 23. A bezel according to claim 21 wherein the first depression includes a chamber wall from which the ribs extend such that removal of the ribs leaves an open chamber defined by the chamber wall.
24. A bezel according to claim 23 wherein the ribs are removable by a  
10 milling operation.
25. A bezel according to claim 21 further comprising an open chamber formed by a second depression in the pumping side of the rigid block.
- 15 26. A bezel according to claim 25 wherein each of the first and second depressions include two of the cavities therein.
27. A bezel according to claim 21 wherein the first depression includes two of the cavities therein.  
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28. A bezel according to claim 27 wherein the ribs are arranged to provide a plurality of air passages between the two of the cavities.
29. A bezel according to claim 28 wherein the ribs leave a straight air  
25 passage unobstructed by ribs at each of the two cavities, such that at each of the two cavities the respective straight air passage connects the cavity to the plurality of air passages between the two of the cavities.
30. A bezel according to claim 28 wherein the ribs are parallel to a  
30 perimeter of the first depression.

31. A bezel according to claim 21 wherein the elevated contour formed by the ribs is a mound that increases in height from a perimeter of the first depression toward a middle of the mound.
- 5 32. A bezel according to claim 21 wherein the ports are hollow tubular structures integral with the rigid block and extending out from the port side of the block.
33. A bezel according to claim 32, wherein the port side is opposite the  
10 pumping side.
34. A bezel according to claim 32 wherein the ports have inner diameters larger in size than the cavity in fluid communication therewith.
- 15 35. A bezel according to claim 21, wherein each port provides a solvent bondable tubing connection to the bezel.
36. A bezel assembly for use in delivery of pneumatic pressure comprising:  
20 a rigid block having a plurality of cavities on a pumping side of the block in fluid communication with ports accessible from a port side of the block;  
a first depression in the pumping side of the rigid block, the first depression having at least one of the cavities therein; and  
25 a removable rib insert coupled in the first depression, the rib insert having a plurality of ribs extending up from the first depression to form an elevated contour above the pumping side of the rigid block, the ribs allowing pneumatic pressure applied through the at least one cavity in the first depression to be applied over the elevated contour.

37. A bezel according to claim 36 wherein the ribs form a symmetrical grid of air passages.

38. A bezel according to claim 36 further comprising an open chamber  
5 formed by a second depression in the pumping side of the rigid block.

39. A bezel according to claim 38 wherein each of the first and second depressions include two of the cavities therein.

10 40. A bezel according to claim 36 wherein the first depression includes two of the cavities therein.

41. A bezel according to claim 40 wherein the ribs are arranged to provide a plurality of air passages between the two of the cavities.

15 42. A bezel according to claim 41 wherein the ribs leave a straight air passage unobstructed by ribs at each of the two cavities, such that at each of the two cavities the respective straight air passage connects the cavity to the plurality of air passages between the two of the cavities.

20 43. A bezel according to claim 41 wherein the ribs are parallel to a perimeter of the first depression.

44. A bezel according to claim 36 wherein the elevated contour formed by  
25 the ribs is a mound that increases in height from a perimeter of the first depression toward a middle of the mound.

45. A bezel according to claim 36 wherein the ports are hollow tubular structures integral with the rigid block and extending out from the port side  
30 of the block.

46. A bezel according to claim 45, wherein the port side is opposite the pumping side.
47. A bezel according to claim 45 wherein the ports have inner diameters  
5 larger in size than the cavity in fluid communication therewith.
48. A bezel according to claim 36, wherein each port provides a solvent bondable tubing connection to the bezel.
- 10 49. A bezel assembly comprising:  
a bezel formed by:  
a rigid block having a plurality of cavities on a pumping side of the block;  
a first depression in the pumping side of the rigid block, the first  
15 depression having at least one of the cavities therein; and  
ribs extending up from the first depression to form an elevated contour above the pumping side of the rigid block; and  
a gasket fitting over the pumping side of the rigid block such that positive pressure applied through the at least one cavity in the first  
20 depression forces a gasket membrane to expand away from the pumping side and negative pressure applied through the at least one cavity in the first depression pulls the gasket membrane against the elevated contour of the ribs.
- 25 50. A bezel assembly according to claim 49 wherein the ribs form a symmetrical grid of air passages.
51. A bezel assembly according to claim 49 wherein the first depression includes a chamber wall from which the ribs extend such that removal of the  
30 ribs leaves an open chamber defined by the chamber wall.

52. A bezel assembly according to claim 51 wherein the ribs are removable by a milling operation.

53. A bezel assembly according to claim 49 further comprising an open  
5 chamber formed by a second depression in the pumping side of the rigid block, the second depression having at least one of the cavities therein.

54. A bezel assembly according to claim 53 wherein each of the first and second depressions include two of the cavities therein.

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55. A bezel assembly according to claim 49 wherein the first depression includes two of the cavities therein.

56. A bezel assembly according to claim 55 wherein the ribs are arranged  
15 to provide a plurality of air passages between the two of the cavities.

57. A bezel assembly according to claim 56 wherein the ribs leave a straight air passage unobstructed by ribs at each of the two cavities, such that at each of the two cavities the respective straight air passage connects the  
20 cavity to the plurality of air passages between the two of the cavities.

58. A bezel assembly according to claim 56 wherein the ribs are parallel to a perimeter of the first depression.

25 59. A bezel assembly according to claim 49 wherein the elevated contour formed by the ribs is a mound that increases in height from a perimeter of the first depression toward a middle of the mound.

60. A bezel assembly according to claim 49 further comprising ports, each  
30 in fluid communication with one of the cavities and accessible from a port side of the rigid block.



61. A bezel assembly according to claim 60 wherein the ports are hollow tubular structures integral with the rigid block and extending out from the port side of the block.

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62. A bezel assembly according to claim 61, wherein the port side is opposite the pumping side.

63. A bezel assembly according to claim 61 wherein the ports have inner  
10 diameters larger in size than the cavity in fluid communication therewith.

64. A bezel assembly according to claim 60, wherein each port provides a solvent bondable tubing connection to the bezel.

15 65. A bezel assembly according to claim 49, wherein the ribs are molded into the first depression.

66. A bezel assembly according to claim 49, wherein the ribs are inserted into the first depression.